

217/782-2113

JOINT CONSTRUCTION AND OPERATING PERMIT - REVISED

PERMITTEE

Caterpillar, Inc.  
Attn: Gary Crull  
27th Street and Pershing Road  
Decatur, Illinois 62525

Application No.: 00110003  
Applicant's Designation: S BAYPAINT  
Subject: S-Bay Paint System  
Date Issued: November 13, 2001

I.D. No.: 115015AAK  
Date Received: October 30, 2001  
Operating Permit Expiration  
Date: January 17, 2006

Location: 27th Street and Pershing Road, Decatur

Permit is hereby granted to the above-designated Permittee to CONSTRUCT and OPERATE emission source(s) and/or air pollution control equipment consisting of S-Bay paint system as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Operation of the emission source(s) included in this permit shall not begin until all associated air pollution control equipment has been constructed and is operational.

2.0 Unit Specific Conditions

2.1 Unit: S-Bay Paint System  
Control: Filters

2.1.1 Description

Caterpillar's new S-Bay Paint System will allow the source to paint existing components as well as new product lines at the plant. Within the S-Bay Paint System, parts will be washed, dried, masked, painted, cured and de-masked/assembled/unloaded. The painting process is done in two paint stations. Each paint station utilizes two-stage filter systems to control particulate emissions and a 15 mmBtu/hr make-up air units to provide fresh air.

2.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Paint Booth	S-Bay Paint System Including One Dry-Off Oven, Two Paint Stations, Two Air Make-Up Units, and a Cure Oven	Filters

2.1.3 Applicability Provisions and Applicable Regulations

- a. A "paint booth" for the purpose of these unit-specific conditions, is a paint booth as described in Conditions 2.1.1 and 2.1.2.
- b. The affected paint booth is subject to 35 IAC Part 215, Subpart F, Coating Operations: The Permittee shall not cause or allow the emission of volatile organic material to exceed the following limitations on coating materials, excluding water and any compounds which are specifically exempted from the definition of volatile organic material, delivered to the coating applicator:

	<u>kg/l</u>	<u>lb/gal</u>
Heavy Off-highway Vehicle Products		
Extreme Performance Prime Coat	0.42	3.5
Extreme Performance Top Coat-Air Dried	0.52	4.3
Final Repair Coat-Air Dried	0.58	4.8

[35 IAC 215.204(k) (2)]

- c. The paint booth is subject to 35 IAC 212.321(a), which provides that the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 [35 IAC 212.321(a)].
- d. The two air make-up units are subject to the NSPS for Small Industrial-Commercial Institutional Steam Generating Units, 40 CFR 60 Subparts A and Dc. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.
- e. The Permittee shall not cause or allow the emission of carbon monoxide (CO) into the atmosphere from the two air make-up units to exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].

2.1.4 Non-Applicability of Regulations of Concern

The Permittee of a coating line subject to the limitations of 35 IAC 215.204 is not required to meet the limitations

of 35 IAC Part 215, Subpart K (35 IAC 215.301 or 215.302) [35 IAC 215.209].

#### 2.1.5 Operational and Production Limits and Work Practices

Natural gas shall be the only fuel fired in the air make-up units, dry-off oven, and cure oven.

#### 2.1.6 Emission Limitations

- a. Emissions from the affected paint booth (including emissions associated with all paints, solvents and peelable masking in the affected paint booth) shall not exceed the following limits:

VOM Emissions	
<u>(Ton/Month)</u>	<u>(Ton/Year)</u>
9.19	91.84

These limits are based on the maximum material usage and the compliance procedures specified in Condition 2.1.12. The annual limit represents an increase of 37.47 tons based on the actual emission decrease from the R-Bay and D Paint Systems of 54.37 tons.

- b. Emissions from the two air make-up units, dry-off oven, and cure oven shall not exceed the following limits:

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
NO <sub>x</sub>	1.6	15.8
CO	1.4	13.3
PM	0.2	1.2
VOM	0.1	0.9
SO <sub>2</sub>	0.1	0.1

These limits are based on the maximum firing rate, the maximum hours of operation (8,760 hours/year), and emission factors and formulas in Condition 2.1.12.

- c. The emissions of hazardous air pollutants (HAP) as listed in Section 112(b) of the Clean Air Act from the affected paint booth shall not exceed 8.0 tons/year of any single HAP and 17.4 tons/year of any combination of such HAPs.
- d. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the

current month plus the preceding 11 months (running 12 month total).

- e. The source has addressed the applicability and compliance of 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits continue to ensure that the construction and/or modification addressed in this construction permit does not constitute a new major source or major modification pursuant to these rules.

#### 2.1.7 Testing Requirements

- a. The VOM content of coatings shall be determined by Method 24, 40 CFR Part 60, Appendix A, incorporated by reference in 35 IAC 215.105 except for glues and adhesive coatings, two component reactive coatings forming volatile reaction products, coatings requiring energy other than heat to initiate curing, and coatings requiring high temperature catalysis for curing, providing the person proposing testing of the material submits to the Illinois EPA proof that the Method 24 results would not be representative and proof that a proposed alternative test method gives representative, accurate test results. Any alternate test method must be approved by the Illinois EPA which shall consider data comparing the performance of the proposed alternative to the performance of the approved test method(s). If the Illinois EPA determines that such data demonstrates that the proposed alternative will achieve results equivalent to the approved test method(s), the Illinois EPA shall approve the proposed alternative [35 IAC 215.208(a)].
- b. As an alternative to Condition 2.1.7(a), the manufacturer's specifications for VOM content for coatings may be used if such manufacturer specifications are based on results of tests of the VOM content conducted in accordance with methods specified in 35 IAC 218.105(a); provide, however, Method 24, 40 CFR Part 60, Appendix A, shall be used to determine compliance.
- c. Transfer efficiency shall be determined by a method, procedure or standard approved by the USEPA, under the applicable new source performance standard or until such time as USEPA has approved and published such a method, procedure or standard, by any appropriate method, procedure or standard approved by the Illinois EPA [35 IAC 215.208(b)].

2.1.8 Monitoring Requirements

None

2.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected paint booth to demonstrate compliance with condition 2.1.6:

- a. Amount of each material used (gallons/month and gallons/year);
- b. Amount of solvent reclaimed (gallons/month and gallons/year);
- c. Amount of waste shipped offsite (pounds/month and pounds/year);
- d. VOM content (pounds VOM/gallon) and HAP content (weight percent) of each material used;
- e. Density of each material used (pounds/gallon);
- f. VOM emissions, individual HAP emissions and combination of HAPs emissions (tons/month and tons/year); and
- g. The Permittee shall maintain records of the following items for the air make-up units to demonstrate compliance with the conditions in this permit:
  - i. The Permittee of each air make-up unit shall record and maintain records of the amount of fuel combusted during each day [40 CFR 60.48c(g)].
  - ii. This record shall be maintained by Permittee of the air make-up units for a period of two years following the date of such record [40 CFR 60.48c(i)].

2.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of noncompliance of the affected paint booth with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Emissions of VOM or HAP in excess of the limits specified in condition 2.1.6.

- b. The Permittee shall notify the Illinois EPA (MC 40), Compliance Section, P.O. Box 19276, Springfield, IL 62794-9276 of the following dates:
  - i. The date construction of each air make-up unit commenced postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1).
  - ii. The anticipated date of initial startup of each air make-up unit postmarked not more than 60 days nor less than 30 days prior to such date, pursuant to 40 CFR 60.7(a)(2).
  - iii. The actual date of initial startup of each air makeup unit postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3).

2.1.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected paint booth without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

- a. Usage of different materials for the affected paint booth, provided that the Permittee continues to comply with the conditions of this permit.
- b. Notwithstanding condition 3, R-Bay and D Paint Systems may be operated until August 31, 2003. This period may be extended by the Illinois EPA upon written request by the Permittee demonstrating that additional time is needed for transfer of production due to unanticipated delays. After this period, the R-Bay and D Paint Systems must be shut down.
  - i. During this period, the emission from the S-Bay, R-Bay and D Paint Systems combined shall not exceed the emission limits specified in condition 2.1.6(a).
  - ii. During this period, the recordkeeping requirements (See condition 2.1.9) and compliance procedures 2.1.12) will be used to determine compliance with the emission limits in condition 2.1.6

#### 2.1.12 Compliance Procedures

- a. Compliance with Condition 2.1.3(b) is based on the recordkeeping requirements in Condition 2.1.9.
- b. Compliance with Condition 2.1.3(c) is considered to be assured by the normal work practices and maintenance activities inherent in operation of the affected paint booth.
- c. Compliance with Condition 2.1.3(c) is considered to be assured by the normal work practices and maintenance activities inherent in operation of the two air make-up units.
- d. Compliance with the emission limits established in condition 2.1.6(a) shall be based on the recordkeeping requirements in Condition 2.1.9 and the emission factors and formulas listed below:

VOM emissions from the affected paint booth shall be calculated based on the following:

$$\text{VOM Emissions (tons)} = [(\text{Material Usage, gallons}) \times (\text{VOM Content of Material, lb VOM/gallon}) - (\text{Reclaimed Solvent Usage, gallons}) \times (\text{VOM Content of Reclaimed Solvent, lb VOM/gallon}) - (\text{Waste Shipped Offsite, pounds})] / (2000 \text{ pounds/ton})$$
$$\text{HAP Emissions (tons)} = (\text{Material Usage, gallons}) \times (\text{density of material, pounds/gallon}) \times (\text{HAP Content of Material, wt. \%})$$

- c. To determine compliance with Condition 2.1.6(b), emissions from the two air make-up units, dry-off oven, and cure oven shall be calculated based on the following emission factors:

<u>Pollutant</u>	<u>Emission Factor (lb/Mft<sup>3</sup>)</u>
CO	84
NO <sub>x</sub>	100
PM	7.6
SO <sub>2</sub>	0.6
VOM	5.5

These are the emission factors for uncontrolled natural gas combustion in small boilers (< 100 mmBtu/hr), Tables 1.4-1 and 1.4-2, AP-42, Volume I, Fifth Edition, March, 1998.

$$\text{Emissions (lb)} = (\text{Natural Gas Consumed, Mft}^3) \times (\text{The Appropriate Emission Factor, lb/Mft}^3)$$

3. This permit is issued based upon the shutdown of existing R-Bay ( the two robotic booths) and D Paint Systems as a result of the new S-Bay Paint System, which will handle production previously painted in these units. These existing units shall be shutdown when the S-Bay Paint System begins normal operation. The existing permit 90020050 will remain in effect for the CA booth.
4. Operation of the equipment being constructed and/or modified is allowed under this permit until final action is taken on the Clean Air Act Permit Program (CAAPP) application for this source, provided that such CAAPP application has been received and been deemed complete by the Illinois EPA. As a result, the Permittee must still update the CAAPP application to include the aforementioned equipment but is not required to submit an application for a state operating permit in the interim.

Please note that this permit is issued for the construction (and operation) of the equipment listed above. The Permittee should update their CAAPP application to include this new equipment by submitting form 505-CAAPP - "Supplement to CAAPP Application" along with all other appropriate information to accomplish this.

It should be noted that this permit has been revised to extend the operating time for the Building D paint systems (See also Condition 2.1.11(b)).

If you have any questions on this, please call Jason Schnepf at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

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cc: Region 3